

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of the claims in the application.

Listing of the Claims:

1           1. (currently amended) A process for stabilizing  
2 the pH of a pulp suspension at a desired pH level,  
3 comprising increasing the alkalinity of said paper making  
4 pulp suspension by adding thereto, in the stock  
5 preparation of a paper machine in a paper mill, a  
6 combination of an alkali metal hydroxide feed and a  
7 carbon dioxide feed, which cooperate without separate  
8 uses of their respective intermediate pH adjusting  
9 effects, each of said feeds being added in an amount  
10 greater than what would be required to only adjust the pH  
11 of the suspension to the desired pH level, ~~which feeds~~  
12 ~~substantially counter each other's pH changing effect,~~  
13 said feeds being provided in an amount sufficient to  
14 achieve a significant buffering effect of said pulp  
15 suspension ~~while enabling utilization of an excess of~~  
16 ~~said hydroxide or said carbon dioxide for adjusting and~~  
17 to increase the pH of said pulp suspension and  
18 ~~maintaining~~ maintain the pH at a desired level from the  
19 addition of the feeds throughout the short circulation  
20 and formation of the paper on the paper machine.

1           2. (currently amended) Process according to claim  
2 1, characterized in that the pH of said pulp suspension  
3 is ~~adjusted~~ increased to a pH between about 7 and 9 ~~by~~  
4 ~~adding an excess of said alkali metal hydroxide or by~~  
5 ~~adding an excess of said carbon dioxide.~~

1           3. (original) Process according to claim 1,  
2 characterized in that said alkali metal hydroxide is  
3 aqueous sodium hydroxide and said carbon dioxide is  
4 gaseous carbon dioxide.

1           4. (original) Process according to claim 1,  
2 characterized in that said alkali metal hydroxide is fed  
3 to said pulp suspension prior to the feeding of said  
4 carbon dioxide.

1           5. (currently amended) Process according to claim  
2 1, characterized in that the alkalinity of said pulp  
3 suspension is increased by providing a substantially  
4 equal molar amount of alkali metal hydroxide and  
5 dissolved carbon dioxide, said amount being sufficient to  
6 provide a significant buffering effect ~~and~~ at about pH 8.

1           6. (original) Process according to claim 1,  
2 characterized in that said pulp suspension is chemical or  
3 mechanical pulp.

1           7. (original) Process according to claim numeral 6,  
2 characterized in that said pulp suspension a is bleached  
3 chemical pulp.

1           8. (previously presented) Process according to  
2 claim 1, characterized in that said pulp suspension  
3 contains calcium carbonate filler.

1           9. (original) Process according to claim 1,  
2 characterized in that said alkali metal hydroxide and  
3 carbon dioxide feeds are added to said pulp suspension  
4 flowing in a pipe leading to a stock preparation tank.

1           10. (original) Process according to claim 1,  
2 characterized in that said alkali metal hydroxide and  
3 said carbon dioxide are combined prior to feeding to the  
4 pulp suspension.

1           11. (currently amended) A process for producing  
2 paper comprising:

3           providing a paper making pulp suspension for  
4 processing in the stock preparation of a paper machine in  
5 a paper mill;

6           increasing the alkalinity of said pulp suspension by  
7 adding thereto in said stock preparation a combination of

8 an alkali metal hydroxide feed and a carbon dioxide feed,  
9 which feeds cooperate without separate uses of their  
10 respective intermediate pH adjusting effects, ~~which feeds~~  
11 ~~substantially counter each others pH changing effect,~~  
12 ~~— forming said pulp suspension into a web, and drying~~  
13 ~~said web to form paper,~~

14 each of said feeds being provided in an amount  
15 greater than that required to only adjust the pH of the  
16 pulp suspension to a desired level, and said feeds being  
17 provided in an amount sufficient to achieve a substantial  
18 buffering effect of said pulp suspension ~~while enabling~~  
19 ~~utilization of an excess of said hydroxide or said carbon~~  
20 ~~dioxide for adjusting~~ and to increase the pH of said pulp  
21 suspension and ~~for maintaining~~ maintain the pH at a  
22 desired level from the addition of the feeds throughout  
23 the short circulation and the formation of the pulp  
24 suspension into a web; and

25 forming said pulp suspension into a web, and drying  
26 said web to form paper.

1 12. (currently amended) Process according to claim  
2 11, characterized in that the pH of said pulp suspension  
3 is ~~adjusted~~ increased to a desired value between 7 and 9  
4 ~~by adding an excess of said alkali metal hydroxide or~~  
5 ~~said carbon dioxide.~~

1           13. (currently amended) A process for stabilizing  
2 the pH of a pulp suspension at a desired pH level,  
3 comprising the steps of:

4           (a) providing a paper making pulp suspension having  
5 an initial pH for processing in the stock preparation of  
6 a paper machine in a paper mill, said initial pH being  
7 lower than said desired pH;

8           (b) adding to said pulp suspension a combination of  
9 a carbon dioxide feed and an alkali metal hydroxide feed,  
10 which feeds cooperate without separate uses of their  
11 respective intermediate pH adjusting effects, said feeds  
12 being added in amounts which exceed those required to  
13 only increase the pH to the desired level and which feeds  
14 cooperate concurrently to:

15                 i) substantially counter each other's pH  
16 changing effect, and

17                 ii) achieve a significant buffering of said  
18 pulp suspension; and

19           (c) adding to said pulp suspension an excess amount  
20 of said alkali metal feed to increase the pH of said pulp  
21 suspension to a pH higher than said initial pH,  
22 whereby said pH of said pulp suspension is stabilized  
23 throughout the short circulation and the formation of  
24 said pulp suspension into a web.

25           ~~adding alkali metal hydroxide to the pulp suspension~~  
26 ~~in the stock preparation in a first amount sufficient to~~

~~27 adjust the pulp suspension to the desired pH if the~~  
~~28 initial pH is lower than the desired pH,~~  
~~29 ——— adding carbon dioxide to the pulp suspension in the~~  
~~30 stock preparation in a second amount sufficient to adjust~~  
~~31 the pulp suspension to the desired pH if the initial pH~~  
~~32 is higher than the desired pH,~~  
~~33 ——— adding alkali metal hydroxide to the pulp suspension~~  
~~34 in the stock preparation in a third amount, and~~  
~~35 ——— adding carbon dioxide to the pulp suspension in the~~  
~~36 stock preparation in a fourth amount,~~  
~~37 ——— the third amount of metal hydroxide and the fourth~~  
~~38 amount of carbon dioxide being provided in quantities to~~  
~~39 substantially counter each other's pH changing effect and~~  
~~40 to achieve a significant buffering effect of the pulp~~  
~~41 suspension such that the pH of the suspension is~~  
~~42 maintained at substantially the desired pH level from the~~  
~~43 last addition of alkali metal hydroxide and carbon~~  
~~44 dioxide throughout the short circulation and the~~  
~~45 formation of the pulp suspension into a web.~~

1        14. (previously presented) Process according to  
2 claim 13, wherein the step of providing said paper making  
3 pulp suspension includes adding water to bales of pulp or  
4 adding water to pulp of increased consistency coming from  
5 a pulp mill.

1           15. (currently amended) Process according to claim  
2   13, wherein said amount of alkali metal hydroxide ~~is~~  
3   ~~sodium hydroxide and said third amount of sodium~~  
4   ~~hydroxide and said fourth amount of carbon dioxide~~  
5   ~~provide a~~ which achieve a significant buffering are,  
6   ~~buffering combination and said third amount and fourth~~  
7   ~~amount,~~ respectively, ~~is~~ equal to between 0.5 and 5  
8   kg/ton dry cellulose.

1           16. (currently amended) A process for stabilizing  
2   the pH of a pulp suspension at a desired pH level,  
3   comprising providing a papermaking pulp suspension and  
4   increasing the alkalinity of said paper making pulp  
5   suspension by adding to the circulation system of pulp  
6   and white water in the stock preparation of a paper  
7   machine in a paper mill, a combination of an alkali metal  
8   hydroxide feed and a carbon dioxide feed, which feeds  
9   cooperate without separate uses of their respective  
10   intermediate pH adjusting effects, each of said feeds  
11   being added in an amount greater than what would be  
12   required to only adjust the pH of the suspension to the  
13   desired pH level, ~~which feeds substantially counter each~~  
14   ~~other's pH changing effect,~~ said feeds being provided in  
15   an amount sufficient to achieve a significant buffering  
16   effect of said pulp suspension ~~while enabling utilization~~  
17   ~~of an excess of said hydroxide or said carbon dioxide for~~

18 ~~adjusting~~ and to increase the pH of said pulp suspension  
19 and ~~maintaining~~ maintain the pH at a desired level from  
20 the addition of the feeds throughout the short  
21 circulation and formation of the paper on the paper  
22 machine.

1        17. (previously presented) Process according to  
2 claim 16, wherein the step of providing said paper making  
3 pulp suspension includes adding water to bales of pulp or  
4 adding water to pulp of increased consistency coming from  
5 a pulp mill.

1        18. (currently amended) Process according to claim  
2 16, wherein said amount of alkali metal hydroxide feed,  
3 which achieves a significant buffering, is a sodium  
4 hydroxide feed of from about 0.5 kg/ton to about 5 kg/ton  
5 of dry cellulose and said amount of carbon dioxide feed,  
6 which achieves a significant buffering, is equal to from  
7 about 0.5 kg/ton to about 5 kg/ton of dry cellulose.

1        19. (currently amended) A process for producing  
2 paper comprising:

3        (a) adding water to bales of pulp or to pulp of  
4 increased consistency from a pulp mill to provide a paper  
5 making pulp suspension for processing in the stock  
6 preparation of a paper machine in a paper mill including



7 short circulation and formation of the pulp suspension  
8 into a web;

9 (b) increasing the alkalinity of said pulp  
10 suspension in said stock preparation by adding thereto a  
11 combination of an alkali metal hydroxide feed and a  
12 carbon dioxide feed, which feeds cooperate without  
13 separate uses of their respective intermediate pH  
14 adjusting effects and ~~which feeds~~ substantially counter  
15 each others pH ~~changing~~ adjusting effect, said feeds  
16 being provided in an amount greater than that required to  
17 adjust the pH of the pulp suspension to a desired level,  
18 and said feeds being provided in an amount sufficient to  
19 achieve a substantial buffering effect of said pulp  
20 suspension,

21 ~~forming said pulp suspension into a web, and drying~~  
22 ~~said web to form paper,~~

23 ~~said feeds being provided in an amount greater than~~  
24 ~~that required to adjust the pH of the pulp suspension to~~  
25 ~~a desired level, and said feeds being provided in an~~  
26 ~~amount sufficient to achieve a substantial buffering~~  
27 ~~effect of said pulp suspension while enabling utilization~~  
28 ~~of an excess of said hydroxide or said carbon dioxide for~~  
29 ~~adjusting~~

30 (c) adding an excess amount of said hydroxide to  
31 increase the pH of said pulp suspension and ~~for~~  
32 ~~maintaining~~ maintain the pH at a desired level from the

33 addition of the feeds throughout the short circulation  
34 and the formation of the pulp suspension into a web, and  
35 (d) forming said pulp suspension into a web, and  
36 drying said web to form paper.

1 20. (currently amended) Process according to claim  
2 19, wherein the amount of said alkali metal hydroxide  
3 feed sufficient to achieve a substantial buffering effect  
4 is a sodium hydroxide feed of from about 0.5 kg/ton to  
5 about 5 kg/ton of dry cellulose and the amount of said  
6 carbon dioxide feed sufficient to achieve a substantial  
7 buffering effect is from about 0.5 kg/ton to about 5  
8 kg/ton of dry cellulose.

1 21. (previously presented) Process according to  
2 claim 1, wherein said paper making pulp suspension is  
3 provided by adding water to bales of pulp or adding water  
4 to pulp of increased consistency coming from a pulp mill.

1 22. (currently amended) Process according to claim  
2 1, wherein said amount of said alkali metal hydroxide  
3 feed, which is sufficient to achieve a substantial  
4 buffering effect, is a sodium hydroxide feed of from  
5 about 0.5 kg/ton to about 5 kg/ton of dry cellulose and  
6 said amount of said carbon dioxide feed, which is

7 sufficient to achieve a substantial buffering effect, is  
8 from about 0.5 kg/ton to about 5 kg/ton of dry cellulose.

1 23. (previously presented) Process according to  
2 claim 11, wherein the step of providing said paper making  
3 pulp suspension includes adding water to bales of pulp or  
4 adding water to pulp of increased consistency coming from  
5 a pulp mill.

1 24. (currently amended) Process according to claim  
2 11, wherein said amount of said alkali metal hydroxide  
3 feed, which is sufficient to achieve a substantial  
4 buffering effect, is a sodium hydroxide feed of from  
5 about 0.5 kg/ton to about 5 kg/ton of dry cellulose and  
6 said amount of said carbon dioxide feed, which is  
7 sufficient to achieve a substantial buffering effect, is  
8 from about 0.5 kg/ton to about 5 kg/ton of dry cellulose.

1 25. (currently amended) A process for stabilizing  
2 the pH of a pulp suspension at a desired pH level,  
3 comprising providing a papermaking pulp suspension in a  
4 paper mill after a pulp mill and increasing the  
5 alkalinity of said pulp suspension by adding thereto, in  
6 the stock preparation of a paper machine in said paper  
7 mill, a combination of an alkali metal hydroxide feed and  
8 a carbon dioxide feed, which feeds cooperate without

9     separate uses of their respective intermediate pH  
10    adjusting effects, each of said feeds being added in an  
11    amount greater than what would be required to only adjust  
12    the pH of the suspension to the desired pH level, ~~which~~  
13    ~~feeds substantially counter each other's pH changing~~  
14    ~~effect,~~ said feeds being provided in an amount sufficient  
15    to achieve a significant buffering effect of said pulp  
16    suspension ~~while enabling utilization of an excess of~~  
17    ~~said hydroxide or said carbon dioxide for adjusting and~~  
18    to increase the pH of said pulp suspension and  
19    ~~maintaining~~ maintain the pH at a desired level from the  
20    addition of the feeds throughout the short circulation  
21    and formation of the paper on the paper machine.

1           26. (previously presented) A process according to  
2    claim 25, wherein said feeds are added to the circulation  
3    of pulp and white water of said paper machine.